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FOREST SERVICE
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ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION

A Site Index Table for Aspen in the Southern and Central Rocky Mountains

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The spectrum of aspen habitats was sampled and 177 mature trees were sectioned. Their individual height growth curves were used to construct nonharmonized, or natural, site index curves. The table represents height-age intercepts of the site index curves. Brief instructions are given for their use.

The following site index table was derived from natural site index curves based on 59 even-aged plots - - 48 in Colorado, 9 in New Mexico, and 2 in Arizona. Each natural site index curve was based on plots belonging in the site index class represented by that curve. The index age was 80 years.

To use the table, find the number of rings at breast height[2] and the total heights of three or more dominant trees. Enter the table with average height and ring count to obtain site index.

If the sample trees have fewer than 40 rings at breast height, site index estimates will be less reliable than if older trees are measured. With fewer than 30 rings, large errors may occur.

Aspen rings are often difficult to count accurately. A sharp increment borer makes them more distinct. The rings can usually be counted with a hand lens if the core is moistened and held toward the sky. If trees have been attacked by the Great Basin tent caterpillar, the resulting bands of very narrow rings are especially hard to count. Accuracy is possible, however, if the core is put into a clamp and one side smoothly shaved with a sharp razor blade. Rub the shaved surface with the side of a soft pencil lead. A strong hand lens then will usually show all the rings.

Aspen stands are composed of clones--patches of aspen within which each tree is genetically identical to every other tree. Different clones sometimes give considerably different site indexes.[3] When an aspen site is to be appraised, first look it over. Are there patches of the same age but with different heights on what appears to be a uniform habitat? If there are, take site index sample trees from more than one clone.

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[2]*Rocky Mountain aspen needed an average of 4 years to reach breast height. Because the actual time required was quite variable and poorly correlated with site quality, however, breast height age should be determined directly and not estimated from total age.*

[3]*Zahner, Robert, and Crawford, Ned A. The clonal concept in aspen site relations, pp. 229-243. In Forest-soil relationships in North America, edited by Chester T. Youngberg. Corvallis: Ore. State Univ. Press. 1965.*

Table 1.--Site index of aspen by height of dominant trees and age at breast height (4-1/2 feet)

Height of dominant trees (feet)	Breast height age (years)																														
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160
	Site index values																												
12	24	21																											
14	29	25	22	21																									
16	36	30	26	24	22	21	20																						
18	43	35	30	28	26	24	23	22	21	20																			
20	49	40	35	31	29	27	25	24	23	22	21	21	20																
22	55	45	39	35	32	30	28	27	26	25	23	23	22	21	21	20													
24	62	50	43	39	35	33	31	29	28	27	26	25	24	23	23	22	21	21	20										
26	69	55	47	42	38	36	34	32	30	29	28	27	26	25	25	24	23	22	22										
28	75	60	51	46	42	39	36	34	33	31	30	29	28	27	26	25	25	24	24										
30	82	65	55	50	45	41	39	37	35	34	32	31	30	29	28	27	26	26	25										
32	88	71	60	54	47	44	41	39	38	36	34	33	32	31	30	29	28	27	27										
34	94	76	64	57	50	47	44	42	40	38	36	35	34	33	32	31	30	29	28										
36		81	68	61	53	50	46	44	42	40	38	37	36	35	34	33	32	31	30										
38		86	72	64	56	52	49	47	44	42	41	39	38	37	36	34	33	32	31	31	30								
40		91	76	67	60	55	51	49	47	45	43	41	40	39	38	36	35	34	33	32	31	31	30						
42			80	70	63	58	54	51	49	47	45	44	42	41	39	38	37	36	35	34	33	32	31	31					
44			84	74	66	61	57	54	51	49	47	46	44	42	41	40	39	38	37	36	35	34	33	32	31	31	30		
46			89	77	69	63	59	56	53	51	49	48	46	44	43	42	41	39	38	37	36	35	35	34	33	32	32	31	30
48			93	80	72	66	62	59	56	53	51	50	48	46	45	44	42	41	40	39	38	37	36	35	34	34	33	32	32
50				84	75	69	64	61	58	56	53	52	50	48	47	46	44	43	42	41	40	39	38	37	36	35	34	34	33
52				87	78	72	67	63	60	58	56	54	52	50	49	47	46	45	43	42	41	40	39	38	37	37	36	35	35
54				91	81	74	69	66	63	60	58	56	54	52	51	49	48	47	45	44	43	42	41	40	39	38	37	37	36
56					84	77	72	68	65	62	60	58	56	54	53	51	50	48	47	46	45	43	42	41	40	40	39	38	37
58					87	80	74	70	67	64	62	60	58	56	55	53	51	50	49	47	46	45	44	43	42	41	40	39	39
60					90	83	77	73	69	67	64	62	60	58	57	55	53	52	50	49	48	47	45	44	43	43	42	41	40
62						85	80	75	72	69	66	64	62	60	58	57	55	54	52	51	49	48	47	46	45	44	43	42	42
64						88	82	78	74	71	68	66	64	62	60	59	57	55	54	52	51	50	49	48	47	45	45	44	43
66						91	85	80	76	73	71	68	66	64	62	60	59	57	56	54	53	52	50	49	48	47	46	45	44
68							87	83	79	75	73	70	68	66	64	62	61	59	57	56	55	53	52	51	50	48	47	46	46
70							90	85	81	77	75	72	70	68	66	64	62	61	59	58	56	55	54	52	51	50	49	48	47
74								90	85	82	79	76	74	72	70	68	66	64	63	61	60	59	57	56	55	53	52	51	50
78									90	86	83	80	78	76	74	72	70	68	66	65	63	62	61	59	58	57	56	54	53
82										91	87	85	82	80	78	76	73	72	70	68	67	65	64	63	61	60	59	58	57
86											92	89	86	84	81	79	77	75	73	72	70	69	67	66	65	64	63	61	60
90												93	90	87	85	83	81	79	77	75	74	72	71	70	68	67	66	65	64
94														91	89	87	85	83	81	79	77	76	74	73	72	71	70	69	68
98															93	91	89	87	85	83	81	80	78	77	76	75	73	73	72
102																	93	91	89	87	85	83	82	80	79	78	77	76	75
106																			93	91	89	87	86	85	83	82	81	80	79
110																					93	91	90	89	87	86	85	84	83
114																								93	91	90	89	88	87
118																											93	92	92